

This Listing of Claims will replace all prior versions, and listings, of claims in the application:

### **LISTING OF CLAIMS**

1. (Currently Amended): A method of detecting biomolecules on a microarray comprising synthesizing said biomolecules on a microarray by spatially directed synthesis; scanning said microarray with a scanning electron microscope; and detecting said biomolecules on said microarray.
2. (Original): A method of claim 1 wherein said biomolecules are nucleotides, oligonucleotides or polynucleotides.
3. (Original): A method of claim 1 wherein said microarray is synthesized by light directed oligonucleotide synthesis.
4. (Original): A method of claim 1 wherein said method is used to detect errors in said synthesizing said biomolecules.
5. (Currently Amended): A method of claim 1 wherein said method is used to detect misalignment of said ~~plurality of~~ biomolecules on said microarray.
6. (Currently Amended): A method of claim 5 wherein said misalignment is detected with a resolution of less than about 5 ~~micron~~ microns.
7. (Original): A method of claim 5 wherein said misalignment is detected with a resolution of less than about 1 micron.
8. (Original): A method of claim 1 wherein said microarray is coated with a layer of metals.
9. (Currently Amended): A method analyzing interactions between a biomolecule target and a biomolecule probe on a microarray synthesized by spatially directed synthesis, comprising

exposing said biomolecule probe on said microarray to a plurality of biomolecule targets under a hybridization condition;

scanning said microarray with a scanning electron microscope; and

detecting said biomolecule targets binding to said biomolecule probe on said microarray.

10. (Original): A method of claim 9 wherein said microarray is synthesized by light directed syntheses.

11. (Original): A method of claim 9 wherein said biomolecules are nucleotides, oligonucleotides or polynucleotides.

12. (Original): A method of claim 9 wherein said biomolecule target is labeled with a heavy atom.

13. (Original): A method of claim 12 wherein said heavy atom is a colloidal gold.

14. (Original): A method of claim 13 wherein said heavy atom is detected using a backscattered electron detector.

15. (Original): A method of testing conditions in a microarray manufacturing process comprising

synthesizing biomolecules on a first microarray using a microarray manufacturing process with a first condition;

inspecting a pattern on said first microarray with a scanning electron microscope;

synthesizing biomolecules on a second micro array using a micro array manufacturing process with a second condition;

inspecting a pattern on said second microarray with a scanning electron microscope; comparing said patterns on said first microarray and said second microarrays; and

selecting a condition for said microarray manufacturing process.

16. (Original): A method of claim 15 wherein said biomolecules are nucleotides, oligonucleotides or polynucleotides.

17. (Original): A method of claim 15 wherein said microarray is synthesized by light directed oligonucleotide synthesis.